

CLAIMS

1. Method for typing antibodies in a sample liquid,
wherein

- (a) a first aliquot of the sample liquid is contacted with a first immobilized antigen which is specific for a first type of the antibodies to be examined or with a first mixture of immobilized antigens each of which is specific for a first type of antibodies to be examined under conditions in which the antigen or antigen mixture can react with the antibodies and in which the amount of antibody in the sample liquid does not exceed the capacity of the immobilized antigen or antigen mixture,
- (b) the sample liquid from step (a) is contacted with a second immobilized antigen which is specific for a second type of antibodies to be examined or with a mixture of immobilized antigens each of which is specific for a second type of antibodies to be examined under conditions as in step (a), the second antigen or antigen mixture being spatially separate from the first antigen or antigen mixture used in step (a),
- (c) the measures according to step (b) are optionally repeated with one or several further antigens or antigen mixtures which are specific for one or several further types of antibodies to be examined, the further antigens or antigen mixtures each being spatially separate from the antigens or antigen mixtures used in previous steps,

- (d) a second aliquot of the sample liquid is optionally contacted with several immobilized antigens or antigen mixtures according to steps (a) to (c) in which the sequence of antigens or antigen mixtures is, however, different,
- (e) the respective immunological reactivity of the immobilized antigens or antigen mixtures with the sample liquid is determined qualitatively or/and quantitatively and
- (f) a typing of the antibodies present in the sample liquid is carried out based on the reactivity determination.

- 2. Method as claimed in claim 1,
wherein
peptides are used as immobilized antigens.
- 3. Method as claimed in claim 1 or 2,
wherein
the antigens are immobilized on microtitre plates.
- 4. Method as claimed in one of the claims 1 to 3,
wherein
the antigens carry a solid phase binding group via which they are coupled to a reactive solid phase by means of an affinity interaction.
- 5. Method as claimed in claim 4,
wherein
the solid phase binding group is selected from biotin and biotin derivatives and the solid phase is coated with streptavidin or avidin.

6. Method as claimed in one of the claims 1 to 3,
wherein
the antigens are covalently linked to a solid phase.
7. Method as claimed in one of the claims 1 to 3,
wherein
the antigens are present conjugated to a carrier which is adsorptively coupled to a solid phase.
8. Method as claimed in one of the claims 1 to 7,
wherein
a typing of antibodies which are directed towards one or several pathogens is carried out.
9. Method as claimed in claim 8,
wherein
antiviral antibodies are typed.
10. Method as claimed in claim 9,
wherein
antibodies to hepatitis C virus are typed.
11. Peptide comprising at least one immunologically active region from the hepatitis C virus selected from
 - (a) the amino acids 384 - 414,
 - (b) the amino acids 1738 - 1759,
 - (c) the amino acids 2217 - 2236,
 - (d) the amino acids 2402 - 2419,
 - (e) the amino acids 2345 - 2357and partial sequences thereof having a length of at least 6 amino acids.

12. Peptide as claimed in claim 11,
wherein
the immunologically active region is selected from
(a) the amino acid sequences shown in SEQ ID NO. 1
- 10, (b) amino acid sequences which have a
homology of at least 90 % to one of the sequences
from (a), or (c) partial sequences of sequences
from (a) or (b) having a length of at least 6 amino
acids.
13. Peptide as claimed in claim 11,
wherein
the immunologically active region is selected from
(a) the amino acid sequences shown in SEQ ID NO. 11
- 16, (b) amino acid sequences which have a
homology of at least 90 % to one of the sequences
from (a), or (c) partial sequences of sequences
from (a) or (b) with a length of at least 6 amino
acids.
14. Peptide as claimed in claim 11,
wherein
the immunologically active region is selected from
(a) the amino acid sequences shown in SEQ ID NO. 17
- 22, (b) amino acid sequences which have a
homology of at least 90 % to one of the sequences
from (a), or (c) partial sequences of sequences
from (a) or (b) with a length of at least 6 amino
acids.
15. Peptide as claimed in claim 11,
wherein
the immunologically active region is selected from
(a) the amino acid sequences shown in SEQ ID NO. 23

- 24, (b) amino acid sequences which have a homology of at least 90 % to one of the sequences from (a), or (c) partial sequences of sequences from (a) or (b) with a length of at least 6 amino acids.

16. Peptide as claimed in claim 11,

wherein

the immunologically active region is selected from (a) the amino acid sequences shown in SEQ ID NO. 25 - 30, (b) amino acid sequences which have a homology of at least 90 % to one of the sequences from (a), or (c) partial sequences of sequences from (a) or (b) with a length of at least 6 amino acids.

17. Peptide as claimed in ^{claim 11} ~~one of the claims 11 to 16,~~

wherein

the immunologically active region has a length of 30 amino acids at most.

18. Peptide as claimed in ^{claim 1} ~~one of the claims 1 to 17,~~

wherein

the immunologically active region has a length of 9 to 20 amino acids.

19. Peptide as claimed in ^{claim 1} ~~one of the claims 1 to 18,~~

wherein

it additionally comprises an immunologically inactive spacer region.

20. Peptide as claimed in ^{claim 1} ~~one of the claims 1 to 19,~~

wherein

it carries at least one solid phase binding group.

21. Peptide as claimed in claim 20,
wherein
the solid phase binding group is selected from
biotin and biotin derivatives.
22. Peptide as claimed in ^{claim 1} ~~one of the claims 1 to 19~~,
wherein
it carries at least one marker group.
23. Peptide as claimed in claim 22,
wherein
the marker group is selected from luminescent metal
complexes and fluorescent dyes.
24. Use of peptides as claimed in ^{claim 11} ~~one of the claims 11~~
~~to 23~~ in a method for the determination of
antibodies to the hepatitis C virus.
25. Use as claimed in claim 24 as antigens in a
diagnostic method for the detection of a HCV
infection.
26. Use as claimed in claim 24 in a double antigen
bridge test.
27. Use as claimed in claim 24 in a method for typing
antibodies to HCV.
28. Use as claimed in claim 27,
wherein
the typing method is carried out as claimed in one
of the claims 1 to 7.

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